



Georgia-Pacific Corporation

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March 14, 1980

Registered Mail
Certified #667253

United States Environmental
Protection Agency
Region IX
Permits Branch (E-4-3)
215 Fremont Street
San Francisco, California 94105

Attn: Clyde B. Eller, Director
Enforcement Division

Re: Permit for New Boiler
Georgia-Pacific Corporation
Ft. Bragg, California

Dear Mr. Eller:

Our staff has reviewed the subject permit and a number of the conditions are as expected. However, we cannot accept a number of the conditions, in particular the special condition presented in Section VIII (H) which limits the operating hours to 7450 hours/year. The purpose of this limitation is to insure that the annual particulate emissions from the new boiler are less than 50 tons/year. While the requirement to meet this limit is recognized, we propose below an alternate set of conditions that will allow the 50-ton limit to be achieved without limiting the operating hours of the new boiler. This and other unacceptable aspects of the permit are discussed below.

Georgia-Pacific does not believe it is required to offset particulate emissions from the proposed new #5 Hog Fuel Boiler by reducing particulate emissions from existing equipment (#3 Dutch Oven Boiler and #4 Dutch Oven Boiler). Since the particulate emissions from the new #5 Hog Fuel Boiler will be less than 50-tons/year, no offsets are required. (Federal Register, Volume 44, No. 11: January 16, 1979).

Below we address the pertinent sections of the permit conditions contained in your February 1, 1980 letter.

SECTION VIII. SPECIAL CONDITIONS

Paragraph B.

Georgia-Pacific objects to the permit specifying what type of technology must be installed. We believe this is beyond the Agency's authority. We suggest that the language be changed to read:

Georgia-Pacific shall install equipment to control particulate emissions so as to meet the permit conditions set out in Paragraph E below.

We also object to providing the Agency with detailed design specifications for the control system for its approval. To submit the design specifications to the Agency for approval will have an adverse impact on the ability of the engineer to obtain competitive bids from various suppliers. However, Georgia-Pacific will provide the Agency with the final design specifications and guarantees.

Paragraph C.

We propose changing Paragraph C by deleting the 20,000 pounds/hour limitation on the #3 and #4 Dutch Oven Boilers since offsets are not required under the applicable regulations.

Paragraph E.

We propose changing Paragraph E to read as follows:

E. Emissions Limits for Particulate Matter

On and after the date of startup, Georgia-Pacific Corporation shall not discharge into the atmosphere particulate matter in excess of:

1. 0.03 gr/dscf @ 12% CO₂ (2-hour average) at all firing rates from the proposed #5 boiler. The particulate emissions will further be limited to 11.4 lb/hr (2-hour average) at the annual average steam production rate of 98,000 pph.

The reason for this proposed change is, as stated above, that we cannot accept a limitation on our operating hours. With the proposed language the permit will ensure that the annual particulate emissions for the new boiler are less than 50 tons/year.

Paragraphs F, G, and H.

Georgia-Pacific proposes to delete the Paragraphs F, G, and H, from Section VIII. We do not believe that the Agency should place emission levels on VOC and NO_x because these parameters cannot be controlled except by good boiler design. The estimates provided represent best available data. However, if emissions are greater than estimated it will not be possible to reduce them with presently known technology. Also, it has been determined that the levels of VOC and NO_x emitted are not significant in EPA's Ambient Air Quality Impact Report. Paragraph H would be deleted so as to not limit the hours of operation as discussed above.

Paragraph I.

We propose a change in Paragraph I. relating to performance tests to have the required emission test conducted at 98,000 pounds/hour of steam production instead of the maximum rated capacity of 140,000 pounds/hour. The permit required us to operate the #5 Hog Fuel Boiler at an annual average of 98,000 pounds/hour, thus we believe the tests should be carried out at that rate.

The reference to the #3 and #4 Dutch Oven Boilers should be deleted from Paragraph I. for reasons discussed above.

Paragraph J.

We propose the elimination of Paragraph J. in its entirety for reasons discussed above with regard to Paragraphs F and G.

AMBIENT AIR QUALITY IMPACT REPORT

With reference to the Ambient Air Quality Impact Report, Georgia-Pacific would like to make the following comments.

Section IV should read as follows:

The applicant proposes to construct a hog fuel boiler with a design capacity of 270 MMBTU/hr heat input and 140,000 lbs/hr of steam production to be operated at an annual average of 98,000 lbs. steam/hour. This boiler normally is to be fired on 100% redwood bark and mill residues. Number 2 fuel oil will be used to supplement the wood waste and will be limited to 5% or

less of the annual rated fuel use of the boiler. The boiler will operate 24 hours/day, 7 days/week, 365 days/year, to generate electrical power for use for the sawmill with excess energy sold to Pacific Gas and Electric Company.

(Attached are the calculations showing changes in the emission rates due to the use of Number 2 fuel oil).

The second paragraph of Section IV relating to the type of equipment to be installed should be deleted for reasons discussed earlier.

Section V should be changed to reflect that emissions of SO₂ are expected to be small since the use of Number 2 fuel oil will be limited. Further, the second sentence should be changed to indicate that at the expected steam production rate an SO₂ emission of less than 38 tons/year is calculated.

In Section V. (B), we believe the first paragraph should be changed to read:

The control technology will limit particulate matter emissions to less than 50 tons/year based on an outlet concentration limit of 0.03 gr/dscf (as required in attached permit conditions) and 50% excess air.

The second paragraph of Section V (B) relating to the #3 and #4 Dutch Ovens should be deleted in its entirety since no offsets are required as discussed earlier.

Paragraph C should be changed to reflect that Number 2 fuel oil will be burned. (The attached calculations show a slight reduction in NO_x emissions due to the burning of Number 2 fuel oil).

Table I on page 3 of the report should be deleted since it addresses offsets.

Section VI should be changed by deleting the final sentence, which begins with "However, to insure....". As stated earlier, Georgia-Pacific believes it is beyond the authority of the Agency to specify the type of equipment to be installed.

Paragraph B, Section VII, relating to particulate matter should be deleted in its entirety because no offsets are required for this permit.

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March 14, 1980

Please advise us as soon as possible concerning these proposed changes. We would be glad to discuss them with you at any time. If you have any questions, please contact either Keith Bentley or Vince Tretter at (404) 491-1244.

Very truly yours,



Richard A. Horder
Regional Counsel

RAH/mh

cc: Don Harvey - EPA Region IX
Robert Swan - Mendocino County APCD
Michael Argentine - California Air Resources Board
Ralph Shoulders - G-P, Fort Bragg
Norm Waggoner - Nor'West Pacific
Vince Tretter - Atlanta G-P
J. A. McAlister - Atlanta G-P
Keith Bentley - Atlanta G-P

Attachment

FT. BRAGG, CALIFORNIA - AUXILIARY FUEL

Burn a maximum of 5% Design Input #2 Fuel Oil Annually Avg. Sulfur
of .55% 141,000 Btu/Gal

$$\begin{aligned} \text{Boiler rate} &= \frac{140,000 \text{ lb/hr steam} \times 1000 \text{ Btu/lb steam}}{0.80 \text{ Efficient}} \\ &= 175 \times 10^6 \text{ Btu/hr} \end{aligned}$$

Maximum Oil Input

$$\frac{175 \times 10^6 \text{ Btu/hr}}{141,000 \text{ Btu/gal}} = 1240 \text{ Gal/Hr}$$

SO₂

$$\text{From AP-42} \quad \text{SO}_2 = 142(\%S) \frac{\text{lb}}{10^3 \text{ Gal}}$$

$$\text{SO}_2 \text{ Rate} = 1240 \frac{\text{Gal}}{\text{Hr}} \frac{(142) (.55) \text{ lb.}}{10^3 \text{ Gal}} = 96.816/\text{hr.}$$

$$\text{Total Hours Run 5\% of 8760} = 438 \text{ Hr/yr}$$

$$\text{SO}_2 \quad 96.8 \text{ lb/hr (438 hr/yr)} \left(\frac{1}{2000 \text{ lb/T}} \right) = \underline{21.2 \text{ T/yr}}$$

$$\text{NO}_x \quad \text{From AP 42} = 22 \text{ lb}/10^6 \text{ Gal}$$

$$\text{Rate} = 22 \frac{\text{lb}}{10^3 \text{ Gal}} (1240 \text{ Gal/Hr}) (438 \text{ Hr}) (2000 \text{ lb/T})$$

$$= 5.97 \text{ T}$$

$$\text{Wood Fired} \quad 131\text{T/yr} (.05) = 6.55\text{T}$$

No Change NO_x over wood firing

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A. REGION
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June 25, 1980

Mr. David Solomon
U. S. EPA, Permits Branch
Region IX
San Francisco, CA 94105

Subject: NSR 4-4-1
NC 79-07
Permit for Hog Fuel Boiler
Georgia-Pacific, Fort Bragg, CA

Dear Mr. Solomon:

In response to EPA's letter of May 27, 1980, Georgia-Pacific is submitting the attached data pertaining to fuel oil specifications. Chevron No. 5 Fuel Oil is currently utilized at the Fort Bragg plant and would be used as a standby fuel for the new boiler.

EPA's specific questions are answered below:

- a.) The maximum sulfur content of the fuel oil is 1.75% (Average is 1.55%).
- b.) The heat content of the oil is 6,250,000 BTU/barrel which is equivalent to 148,810 BTU/Gal.
- c.) The maximum design firing rate of the fuel oil burners will be 1,175 gal./hour.
- d.) The size, number and model of the fuel oil burners is not available at this time as no boiler vendor has been selected (as yet no bids have even been solicited). Two boiler vendors were contacted (Combustion Engineering and Riley Stoker) and both companies indicated that they would use their own burners and could supply details when they bid the job. Georgia-Pacific could provide this information to EPA at that point.

If you require further information, please contact me.

Very truly yours,

Keith M. Bentley

Keith M. Bentley
Senior Environmental Engineer

KMB/ds

cc: Ralph Shoulders
Vince Tretter
Rick Horder
Norm Waggoner
Mike Argentine (CARB)
Bob Swan (Mendocino County APCD)

Ft. Bragg, California - Auxiliary Fuel

Basis: Burn a maximum of 5% #5 fuel oil on an annual basis at rated capacity of the boiler.

Average Sulfur Content of 1.55%

148,810 BTU/Gal.

Boiler rating $\frac{140,000 \text{ lb/hr steam}}{0.80 \text{ efficiency}} \times 1,000 \text{ BTU/lbs steam} = 175 \times 10^6 \text{ BTU/hr}$

1375 BTU/lb @ 725°F, 400 psi

241 x 10⁶ BTU/hr

Maximum Oil input = $\frac{175 \times 10^6 \text{ BTU/hr}}{148,810 \text{ BTU/Gal.}} = 1175 \text{ Gal/hr}$

A.) From AP-42 $\text{SO}_2 = 157 (\%S) \text{ lb}/10^3 \text{ Gal.}$

$$\text{SO}_2 = \frac{157 (1.55) \times 1175 \text{ Gal/hr}}{1,000} = 285.9 \text{ lb/hr}$$

Total hours run = 5% of 8,760 hours = 438 hours/yr.

$$\text{Annual SO}_2 \text{ emissions} = \frac{285.9 \times 438}{2,000 \text{ lb/ton}} = 62.6 \text{ tons/yr.}$$

B.) From AP-42 $\text{NO}_x = 22 \text{ lb}/10^3 \text{ gal.}$

$$\text{NO}_x = \frac{22 \times 1175}{1,000} \times \frac{438}{2,000} = 5.7 \text{ tons/yr.}$$

Wood firing $\text{NO}_x = 131 \text{ T/yr.} \times .05 = 6.55 \text{ tons/yr.}$

NO_x emissions essentially the same for wood or oil firing.

FUEL OILS

TYPICAL TEST DATA*

Tests	CHEVRON FUEL OIL 4		CHEVRON FUEL OIL 5	
	1.5 S		1.75 S	2.0 S
	El Paso		Richmond	Hawaii
Gravity, °API at 15.6°C (60°F)	21.4		12	15
Flash Point, Pensky Martens, °C (°F)	71 (160)		78 (172)	82 (180)
Viscosity at 50°C (122°F):				
cSt	16		75	70
SFS	9.9		36.5	35.1
Sulphur, % Mass	0.86		1.55	1.5
Pour Point, °C (°F)	-29 (-20)		-7 (+20)	-12 (+10)
Sediment and Water, %	0.05		0.30	0.10
Ash, %	0.07		—	1.03
Sediment by Extraction, %	0.09		0.05	—
BTU per Pound, Gross	18,980		18,700	18,450
BTU per Barrel, Gross	6,144,000		6,250,000	6,233,000

Tests	CHEVRON FUEL OIL 6						
	1.0 S	1.5 S	1.75 S		2.0 S	2.5 S	3.0 S
	Pascagoula	Salt Lake	Richmond	El Segundo	El Paso	Perth Amboy	Pascagoula
Gravity, °API at 15.6°C (60°F)	13.5	19.0	12.0	11.8	8.4	14.0	13.1
Flash Point, Pensky-Martens, °C (°F)	93 (200)	152 (305)	93 (200)	91 (195)	93 (200)	107 (225)	99 (210)
Viscosity at 50°C (122°F):							
cSt	300	150	460	420	300	300	450
SFS	142	72	217	216	142	142	212
Sulphur, % Mass	0.98	1.40	1.50	1.47	1.56	2.39	2.79
Pour Point, °C (°F)	+6 (+40)	+39 (+100)	+6 (+40)	+9 (+50)	+6 (+40)	+6 (+40)	+6 (+40)
Sediment and Water, %	0.5	0.1	0.5	0.5	0.5	0.2	0.5
Ash, %	0.1	0.002	—	—	0.08	0.05	0.1
Sediment by Extraction, %	0.05-0.2	—	0.5	0.09	0.09	0.05	0.05-0.2
BTU per Pound, Gross	18,550	18,800	18,170	18,290	18,130	18,420	18,190
BTU per Barrel, Gross	6,208,900	6,183,000	6,267,000	6,317,500	6,414,500	6,266,000	6,399,100

Tests	CHEVRON LSFO			CHEVRON HVFO 1500	
	0.25 S	0.5 S			
	El Segundo	Richmond	Hawaii	Richmond	Hawaii
Gravity, °API at 15.6°C (122°F)	22.7	19.5	20.4	10.3	10.3
Flash Point, Pensky-Martens, °C (°F)	127 (260)	121 (250)	110 (230)	83 (182)	107 (225)
Viscosity at 50°C (122°F):					
cSt	175	150	270	3,000	2,545
SFS	82	70	125	1,415	1,200
Sulphur, % Mass	0.24	0.48	0.4	1.55	1.9
Pour Point, °C (°F)	+42 (+105)	+30 (+85)	+39 (+100)	+6 (+45)	+24 (+75)
Sediment and Water, %	0.05	0.1	0.02	Nil	0.1
Ash, %	0.006	0.02	0.02	0.04	0.08
Sediment by Extraction, %	—	0.03	0.1	0.02	0.04
BTU per Pound, Gross	19,119	18,977	19,055	18,976	19,632
BTU per Barrel, Gross	6,136,500	6,200,000	6,225,000	6,624,000	6,400,000

*Subject to change without notice. Not to be guaranteed to customer.

